



SEQUENCE LISTING

<110> E. I. du Pont de Nemours and Company

<120> Homologs of MAR-binding Filament-like protein 1 (MFP1)

<130> BC1003 PCT

<140>

<141>

<150> 60/128,900

<151> 1999-04-12

<160> 26

<170> Microsoft Office 97

<210> 1

<211> 2168

<212> DNA

<213> Nicotiana tabacum

<400> 1

atggggagtt	cttgttttcc	ccaatctcca	ctctctcatt	ctctcttttc	ttcttcatca	60
atatcttctt	cccaatttac	acccttgctt	ttttcccaa	gaaatgcgca	aaaatgtaaa	120
aagaaaatgc	cagctatggc	atgtatacac	tccgagaatc	aaaaggaaa	cgaattctgc	180
agcagaagaa	cgattctttt	cgtgggtttc	tctgttcttc	cacttctcag	cttgagggca	240
aatgcttttg	aaggcttgtc	agtagattct	caagtaaaag	cacagccgca	gaaagaggag	300
acagagcaaa	caatccaagg	aaatgcagag	aatcccttct	tttctctact	taatggactt	360
ggagtttttg	gttcaggcgt	gcttggttct	ctttatgcct	tggctcgaaa	cgagaaggcc	420
gtttctgatg	caaccattga	atctatgaaa	aataagctga	aggagaaa	agccacattc	480
gtttcatgga	gaagaaattc	cagtctgagc	tgctgaacga	aagggatata	cgaaataatc	540
aacttaagag	ggcaggcgaa	gaacggcaag	ctctggttaa	ccaattgaat	tcagcaaaga	600
gtacagtaac	taaccttggt	caggagctgc	aaaaagaaaa	acgaattgct	gaagagctca	660
tagttcagat	cgagggcctt	caaaataacc	tcatgcagat	gaaggaggat	aagaaaaaat	720
tgcaggagga	gcttaaagag	aagcttgatt	tgatacaagt	tctgcaagaa	aagataactt	780
tacttactac	agagatcaaa	gataaagagg	catctcttca	gagtacaacc	tctaaactag	840
ctgaaaaaga	atcagaggta	gataaattga	gctcaatgta	tcaggaatcc	caggatcagc	900
tgatgaattt	gacttcagaa	atcaaagaac	ttaaagtcga	agtccagaaa	agagagagag	960
aactagagtt	gaaacgtgaa	tcagaagaca	accttaattg	gcgattaaat	tctttgctcg	1020
ttgagagaga	tgaatctaaa	aaagagcttg	atgctattca	aaaggaatac	agcgagttca	1080
agtcattttc	agagaagaaa	gtggcttctg	atgccaaagt	gttgggggaa	caagaaaaga	1140
gactacacca	gctcgaggaa	caacttggca	ctgcctcaga	tgaagtacgc	aaaaataatg	1200
tgctaattcg	tgatctgact	caagaaaaag	aaaacttaag	gagaatgctg	gacgctgagc	1260
tggaaaacat	aagcaagttg	aagctagagg	tccaggttac	tcaggaaaact	cttgagaaat	1320
ctagaagtga	tgcttctgat	atagcacaa	aactacagca	gtcgaggcat	ctttgctcta	1380
agcttgaagc	tgaggtttct	aaacttcaga	tggaattgga	ggaaacaaga	acatcattac	1440
ggaggaacat	tgatgagaca	aaacgtggtg	cagagctctt	agctgaggag	ctgaccacta	1500
ctagggagct	tctaaagaaa	acaaatgaag	aaatgcacac	tatgtctcat	gaactagcgg	1560
ctgttactga	aaattgtgat	aacttacaga	cggagctagt	tgatgtctac	aagaaagcag	1620
aacgtgctgc	tgatgaactg	aaacaagaaa	agaatattgt	cgtgacactg	gagaaagagc	1680
taacattttt	ggaggctcaa	attacaagag	agaaagagtc	acggaagaat	ctggaagaag	1740
agctggaaa	ggctacggaa	tcacttgatg	agatgaaccg	aaatgctttt	gcacttgcaa	1800
aggagcttga	gcttgcta	tctcatattt	ctagcctcga	ggatgagaga	gaagtgtctc	1860
aaaagtctgt	ttctgagcag	aaacaaattt	ctcaagaatc	ccgagaaaac	cttgaagatg	1920
cccatagcct	ggtaatgaaa	cttggcaagg	aacgcgagag	tctggagaag	agagcaaaga	1980
aattggaaga	tgaaatggca	tcagcaaaag	gtgagatttt	gcggctgcgg	acccaagtaa	2040
attcggtaaa	agctcctgtt	aacaatgagg	aaaaagttga	agctggggaa	aaggcagctg	2100
taacagtga	gagaaccagg	aggaggaaga	ctgctactca	gcctgcttct	cagcaagaaa	2160
gctcatag						2168

<210> 2

<211> 721

<212> PRT

<213> Nicotiana tabacum

<400> 2

Met	Gly	Ser	Ser	Cys	Phe	Pro	Gln	Ser	Pro	Leu	Ser	His	Ser	Leu	Phe
1				5					10					15	
Ser	Ser	Ser	Ser	Ile	Ser	Ser	Ser	Gln	Phe	Thr	Pro	Leu	Leu	Phe	Ser
			20					25					30		
Pro	Arg	Asn	Ala	Gln	Lys	Cys	Lys	Lys	Lys	Met	Pro	Ala	Met	Ala	Cys
		35					40					45			
Ile	His	Ser	Glu	Asn	Gln	Lys	Glu	Ser	Glu	Phe	Cys	Ser	Arg	Arg	Thr
	50					55					60				
Ile	Leu	Phe	Val	Gly	Phe	Ser	Val	Leu	Pro	Leu	Leu	Ser	Leu	Arg	Ala
65					70					75					80
Asn	Ala	Phe	Glu	Gly	Leu	Ser	Val	Asp	Ser	Gln	Val	Lys	Ala	Gln	Pro
				85					90					95	
Gln	Lys	Glu	Glu	Thr	Glu	Gln	Thr	Ile	Gln	Gly	Asn	Ala	Glu	Asn	Pro
			100					105					110		
Phe	Phe	Ser	Leu	Leu	Asn	Gly	Leu	Gly	Val	Phe	Gly	Ser	Gly	Val	Leu
		115					120					125			
Gly	Ser	Leu	Tyr	Ala	Leu	Ala	Arg	Asn	Glu	Lys	Ala	Val	Ser	Asp	Ala
	130					135					140				
Thr	Ile	Glu	Ser	Met	Lys	Asn	Lys	Leu	Lys	Glu	Lys	Glu	Ala	Thr	Phe
145					150					155					160
Val	Ser	Met	Glu	Lys	Lys	Phe	Gln	Ser	Glu	Leu	Leu	Asn	Glu	Arg	Asp
				165					170					175	
Ile	Arg	Asn	Asn	Gln	Leu	Lys	Arg	Ala	Gly	Glu	Glu	Arg	Gln	Ala	Leu
			180					185					190		
Val	Asn	Gln	Leu	Asn	Ser	Ala	Lys	Ser	Thr	Val	Thr	Asn	Leu	Gly	Gln
		195					200					205			
Glu	Leu	Gln	Lys	Glu	Lys	Arg	Ile	Ala	Glu	Glu	Leu	Ile	Val	Gln	Ile
	210					215					220				
Glu	Gly	Leu	Gln	Asn	Asn	Leu	Met	Gln	Met	Lys	Glu	Asp	Lys	Lys	Lys
225					230					235					240
Leu	Gln	Glu	Glu	Leu	Lys	Glu	Lys	Leu	Asp	Leu	Ile	Gln	Val	Leu	Gln
				245					250					255	
Glu	Lys	Ile	Thr	Leu	Leu	Thr	Thr	Glu	Ile	Lys	Asp	Lys	Glu	Ala	Ser
			260					265					270		
Leu	Gln	Ser	Thr	Thr	Ser	Lys	Leu	Ala	Glu	Lys	Glu	Ser	Glu	Val	Asp
		275					280					285			
Lys	Leu	Ser	Ser	Met	Tyr	Gln	Glu	Ser	Gln	Asp	Gln	Leu	Met	Asn	Leu
	290					295					300				
Thr	Ser	Glu	Ile	Lys	Glu	Leu	Lys	Val	Glu	Val	Gln	Lys	Arg	Glu	Arg
305					310					315					320

Glu Leu Glu Leu Lys Arg Glu Ser Glu Asp Asn Leu Asn Val Arg Leu
 325 330 335
 Asn Ser Leu Leu Val Glu Arg Asp Glu Ser Lys Lys Glu Leu Asp Ala
 340 345 350
 Ile Gln Lys Glu Tyr Ser Glu Phe Lys Ser Ile Ser Glu Lys Lys Val
 355 360 365
 Ala Ser Asp Ala Lys Leu Leu Gly Glu Gln Glu Lys Arg Leu His Gln
 370 375 380
 Leu Glu Glu Gln Leu Gly Thr Ala Ser Asp Glu Val Arg Lys Asn Asn
 385 390 395 400
 Val Leu Ile Ala Asp Leu Thr Gln Glu Lys Glu Asn Leu Arg Arg Met
 405 410 415
 Leu Asp Ala Glu Leu Glu Asn Ile Ser Lys Leu Lys Leu Glu Val Gln
 420 425 430
 Val Thr Gln Glu Thr Leu Glu Lys Ser Arg Ser Asp Ala Ser Asp Ile
 435 440 445
 Ala Gln Gln Leu Gln Gln Ser Arg His Leu Cys Ser Lys Leu Glu Ala
 450 455 460
 Glu Val Ser Lys Leu Gln Met Glu Leu Glu Glu Thr Arg Thr Ser Leu
 465 470 475 480
 Arg Arg Asn Ile Asp Glu Thr Lys Arg Gly Ala Glu Leu Leu Ala Ala
 485 490 495
 Glu Leu Thr Thr Thr Arg Glu Leu Leu Lys Lys Thr Asn Glu Glu Met
 500 505 510
 His Thr Met Ser His Glu Leu Ala Ala Val Thr Glu Asn Cys Asp Asn
 515 520 525
 Leu Gln Thr Glu Leu Val Asp Val Tyr Lys Lys Ala Glu Arg Ala Ala
 530 535 540
 Asp Glu Leu Lys Gln Glu Lys Asn Ile Val Val Thr Leu Glu Lys Glu
 545 550 555 560
 Leu Thr Phe Leu Glu Ala Gln Ile Thr Arg Glu Lys Glu Ser Arg Lys
 565 570 575
 Asn Leu Glu Glu Glu Leu Glu Arg Ala Thr Glu Ser Leu Asp Glu Met
 580 585 590
 Asn Arg Asn Ala Phe Ala Leu Ala Lys Glu Leu Glu Leu Ala Asn Ser
 595 600 605
 His Ile Ser Ser Leu Glu Asp Glu Arg Glu Val Leu Gln Lys Ser Val
 610 615 620
 Ser Glu Gln Lys Gln Ile Ser Gln Glu Ser Arg Glu Asn Leu Glu Asp
 625 630 635 640
 Ala His Ser Leu Val Met Lys Leu Gly Lys Glu Arg Glu Ser Leu Glu
 645 650 655

Lys Arg Ala Lys Lys Leu Glu Asp Glu Met Ala Ser Ala Lys Gly Glu
 660 665 670
 Leu Arg Leu Arg Thr Gln Val Asn Ser Val Lys Ala Pro Val Asn Asn
 675 680 685
 Glu Glu Lys Val Glu Ala Gly Glu Lys Ala Ala Val Thr Val Lys Arg
 690 695 700
 Thr Arg Arg Arg Lys Thr Ala Thr Gln Pro Ala Ser Gln Gln Glu Ser
 705 710 715 720
 Ser

<210> 3
 <211> 1199
 <212> DNA
 <213> Nicotiana tabacum

<400> 3
 cgagatgtga atcagaagac aacctgaatg tgcaattaaa ttctttgctc gttgagagag 60
 atgaatctaa aaaagagctt gatgctattc aaaaggaata cagcgagttc agtccattt 120
 cagagaagag agtggcttca gatgccaagc tggtggggga acaagaaaag agactacacc 180
 agctcgagga acaacttggg actgccgtaa gtgaagtaag aaaaaataaa gtgctaattg 240
 ctaatttgac tcaagcaaaa gaaaacctaa ggagaatgct ggacgctgag ctggaaaatg 300
 taagcaagtt gaagctagag gtccagggtta ctcaggaaac tcttgagaaa tcaagaagtg 360
 aagcttctga tatagtagaa caactacagc agtcgaggca cttgtgctct aagcttgaag 420
 ctgaggtttc taagcttcag atggaattgg aggaaacaag gacattgtta cagaagaaca 480
 ttgatgagac aaaacgtggg gcagagttct tagctgcgga gctgaccact actagggagc 540
 ttctaaagaa aacaaatgaa gaaatgcaca ccataatccaa tgaactagct gctgttactg 600
 aaaatcgtga taacttacag acggagctag ttgatgtcta caagaaagca gaacgtgctg 660
 ttaatgaact gaaacaagaa aagaatattg tcgtgacatt ggagaaagag ctaacatttt 720
 tggaggctca aattacaaga gagaaagagt cacggaagaa tctggaagaa gaggttggaaa 780
 gggctacaga atcacttgat gagatgaaca gaaatgcttt tgcacttgca aaggagctgg 840
 agctcgctaa ttctcgattt tctagcctca aagacgagag agaagtgtct caaaagtctg 900
 tttctgagca gaagcaaatt tctcaagaag cccgagaaaa ccttgaagat gcccatagcc 960
 tgggtgatgaa acttggcaag gaacgcgaga gtctggagaa gagagcaaag aaattggaag 1020
 atgaaatggc atcagcaaaa ggtgagattt tgcggttgcg gacacaagta aattcggtaa 1080
 aagctcctgt taacaaagag gaaaaagttg aagctgggga aaaggcaaca gtaacagtga 1140
 agagaacaac caggaggagg aagactgcta ctcctgcttc tcaacaagaa ggctcataa 1199

<210> 4
 <211> 398
 <212> PRT
 <213> Nicotiana tabacum

<400> 4
 Arg Cys Glu Ser Glu Asp Asn Leu Asn Val Gln Leu Asn Ser Leu Leu
 1 5 10 15
 Val Glu Arg Asp Glu Ser Lys Lys Glu Leu Asp Ala Ile Gln Lys Glu
 20 25 30
 Tyr Ser Glu Phe Lys Ser Ile Ser Glu Lys Arg Val Ala Ser Asp Ala
 35 40 45
 Lys Leu Leu Gly Glu Gln Glu Lys Arg Leu His Gln Leu Glu Glu Gln
 50 55 60
 Leu Gly Thr Ala Val Ser Glu Val Arg Lys Asn Lys Val Leu Ile Ala
 65 70 75 80

Asn Leu Thr Gln Ala Lys Glu Asn Leu Arg Arg Met Leu Asp Ala Glu
 85 90 95
 Leu Glu Asn Val Ser Lys Leu Lys Leu Glu Val Gln Val Thr Gln Glu
 100 105 110
 Thr Leu Glu Lys Ser Arg Ser Glu Ala Ser Asp Ile Val Glu Gln Leu
 115 120 125
 Gln Gln Ser Arg His Leu Cys Ser Lys Leu Glu Ala Glu Val Ser Lys
 130 135 140
 Leu Gln Met Glu Leu Glu Glu Thr Arg Thr Leu Leu Gln Lys Asn Ile
 145 150 155 160
 Asp Glu Thr Lys Arg Gly Ala Glu Leu Leu Ala Ala Glu Leu Thr Thr
 165 170 175
 Thr Arg Glu Leu Leu Lys Lys Thr Asn Glu Glu Met His Thr Ile Ser
 180 185 190
 Asn Glu Leu Ala Ala Val Thr Glu Asn Arg Asp Asn Leu Gln Thr Glu
 195 200 205
 Leu Val Asp Val Tyr Lys Lys Ala Glu Arg Ala Val Asn Glu Leu Lys
 210 215 220
 Gln Glu Lys Asn Ile Val Val Thr Leu Glu Lys Glu Leu Thr Phe Leu
 225 230 235 240
 Glu Ala Gln Ile Thr Arg Glu Lys Glu Ser Pro Lys Asn Leu Glu Glu
 245 250 255
 Glu Leu Glu Arg Ala Thr Glu Ser Leu Asp Glu Met Asn Arg Asn Ala
 260 265 270
 Phe Ala Leu Ala Lys Glu Leu Glu Leu Ala Asn Ser Arg Ile Ser Ser
 275 280 285
 Leu Lys Asp Glu Arg Glu Val Leu Gln Lys Ser Val Ser Glu Gln Lys
 290 295 300
 Gln Ile Ser Gln Glu Ala Arg Glu Asn Leu Glu Asp Ala His Ser Leu
 305 310 315 320
 Val Met Lys Leu Gly Lys Glu Arg Glu Ser Leu Glu Lys Arg Ala Lys
 325 330 335
 Lys Leu Glu Asp Glu Met Ala Ser Ala Lys Gly Glu Ile Leu Arg Leu
 340 345 350
 Arg Thr Gln Val Asn Ser Val Lys Ala Pro Val Asn Lys Glu Glu Lys
 355 360 365
 Val Glu Ala Gly Glu Lys Ala Thr Val Thr Val Lys Arg Thr Thr Arg
 370 375 380
 Arg Arg Lys Thr Ala Thr Pro Ala Ser Gln Gln Glu Gly Ser
 385 390 395

<210> 5
 <211> 588
 <212> DNA
 <213> Lycopersicon esculentum

<400> 5
agagcttaaa gagaagcttg atttgattca agttcttgaa gaaaagatta ctttgcttac 60
tacagagatc aaagataaag aggtgagtct tcggagtaac acctctaaac tagctgaaaa 120
agaatcggag gtaaatagtt tgagcgatat gtatcaacaa tcccaggatc agctgatgaa 180
tttgacttca gagatcaaag aacttaaaga tgaaatccag aaaagagaga gagaactgga 240
gttgaaatgt gtatcagaag acaacctgaa tgtgcaatta aattctttgc tcctcgagag 300
agatgaatct aaaaaagagc ttcattgctat tcaaaaaggaa tacagtgagt tcaagtccaa 360
ttctgatgag aaggtggctt cagatgcgaa gctgttgggg gaacaagaga agagactaca 420
ccagcttgag gaacaacttg gcaactgcctt aagtgaagca agtaaaaatg aagtgctaata 480
tgctgatctg actcgagaaa aagaaaacct taggagaatg gtggatgctg agctggacaa 540
tgtaaacaag ttaaagcaag agattgaagt cactcaggaa agtcttga 588

<210> 6
<211> 195
<212> PRT
<213> Lycopersicon esculentum

<400> 6
Glu Leu Lys Glu Lys Leu Asp Leu Ile Gln Val Leu Glu Glu Lys Ile
1 5 10 15
Thr Leu Leu Thr Thr Glu Ile Lys Asp Lys Glu Val Ser Leu Arg Ser
20 25 30
Asn Thr Ser Lys Leu Ala Glu Lys Glu Ser Glu Val Asn Ser Leu Ser
35 40 45
Asp Met Tyr Gln Gln Ser Gln Asp Gln Leu Met Asn Leu Thr Ser Glu
50 55 60
Ile Lys Glu Leu Lys Asp Glu Ile Gln Lys Arg Glu Arg Glu Leu Glu
65 70 75 80
Leu Lys Cys Val Ser Glu Asp Asn Leu Asn Val Gln Leu Asn Ser Leu
85 90 95
Leu Leu Glu Arg Asp Glu Ser Lys Lys Glu Leu His Ala Ile Gln Lys
100 105 110
Glu Tyr Ser Glu Phe Lys Ser Asn Ser Asp Glu Lys Val Ala Ser Asp
115 120 125
Ala Lys Leu Leu Gly Glu Gln Glu Lys Arg Leu His Gln Leu Glu Glu
130 135 140
Gln Leu Gly Thr Ala Leu Ser Glu Ala Ser Lys Asn Glu Val Leu Ile
145 150 155 160
Ala Asp Leu Thr Arg Glu Lys Glu Asn Leu Arg Arg Met Val Asp Ala
165 170 175
Glu Leu Asp Asn Val Asn Lys Leu Lys Gln Glu Ile Glu Val Thr Gln
180 185 190
Glu Ser Leu
195

<210> 7
<211> 662
<212> DNA
<213> Lycopersicon esculentum

<400> 7
gaccactact aaggagcttc taaagaaaac aaatgaagaa atgcacacta tgtcagatga 60
accgtgatag cttacagaca gagctagttg atgtctataa gaaagcagaa catactgcta 120
atgaactgaa acaagaaaag agcattgttg caacactaga agaagagtta aaatttcttg 180
agtctcaaat tacacgagag aaagagttac ggaagagtct ggaagacgag ttagaaaagg 240
ctacagaatc tcttgatgag attaaccgaa atgtgttggc acttgacagag gagctggagc 300
ttgctacttc tcgtaattct agcctcgaag acgagagaga agtgctccga cagtctgttt 360
ctgagcagaa gcaaatttca caagaagccc aagaaaatct ggaagacgcc catagcctgg 420
tgatgaaaact tggcaaggaa cgcgaaagtc ttgagaagag agcaaagaaa ttggaagatg 480
aaatggcagc agcaaaaagg gagattttgc ggctacggag ccaaataaac tcagtaaaaag 540
ctccagtgga ggatgaggaa aaagttgttg ctggggaaaa ggaagaggtg aaggcaacag 600
taacagcaaa gaaaactacc aggagaagga agagtgtctac tgттаagcaa gaggaaccct 660
ag

<210> 8
<211> 226
<212> PRT
<213> Lycopersicon esculentum

<400> 8
Thr Thr Thr Lys Glu Leu Leu Lys Lys Thr Asn Glu Glu Met His Thr
1 5 10 15
Met Ser Asp Glu Leu Val Ala Val Ser Glu Asn Arg Asp Ser Leu Gln
20 25 30
Thr Glu Leu Val Asp Val Tyr Lys Lys Ala Glu His Thr Ala Asn Glu
35 40 45
Leu Lys Gln Glu Lys Ser Ile Val Ala Thr Leu Glu Glu Glu Leu Lys
50 55 60
Phe Leu Glu Ser Gln Ile Thr Arg Glu Lys Glu Leu Arg Lys Ser Leu
65 70 75 80
Glu Asp Glu Leu Glu Lys Ala Thr Glu Ser Leu Asp Glu Ile Asn Arg
85 90 95
Asn Val Leu Ala Leu Ala Glu Glu Leu Glu Leu Ala Thr Ser Arg Asn
100 105 110
Ser Ser Leu Glu Asp Glu Arg Glu Val Leu Arg Gln Ser Val Ser Glu
115 120 125
Gln Lys Gln Ile Ser Gln Glu Ala Gln Glu Asn Leu Glu Asp Ala His
130 135 140
Ser Leu Val Met Lys Leu Gly Lys Glu Arg Glu Ser Leu Glu Lys Arg
145 150 155 160
Ala Lys Lys Leu Glu Asp Glu Met Ala Ala Lys Gly Glu Ile Leu
165 170 175
Arg Leu Arg Ser Gln Ile Asn Ser Val Lys Ala Pro Val Glu Asp Glu
180 185 190
Glu Lys Val Val Ala Gly Glu Lys Glu Lys Val Lys Ala Thr Val Thr
195 200 205
Ala Lys Lys Thr Thr Arg Arg Arg Lys Ser Ala Thr Val Lys Gln Glu
210 215 220
Glu Pro
225

<210> 9
 <211> 1694
 <212> DNA
 <213> Lycopersicon esculentum

<400> 9
 gaagagctta aagagaagct tgatttgatt caagttcttg aagaaaagat tactttgctt 60
 actacagaga tcaaagataa agaggtgagt cttcggagta acacctctaa actagctgaa 120
 aaagaatcgg aggtaaatag tttgagcgat atgtatcaac aatcccagga tcagctgatg 180
 aatttgactt cagagatcaa agaacttaaa gatgaaatcc agaaaagaga gagagaactg 240
 gagttgaaat gtgtatcaga agacaacctg aatgtgcaat taaattcttt gctcctcgag 300
 agagatgaat ctaaaaaaga gcttcattgct attcaaaagg aatacagtga gttcaagtcc 360
 aattctgatg agaaggtggc ttcagatgag aagctgttgg gggaacaaga gaagagacta 420
 caccagcttg aggaacaact tggcactgcc ttaagtgaag caagtaaaaa tgaagtgcta 480
 attgctgatc tgactcgaga aaaagaaaac cttaggagaa tgggtgatgc tgagctggac 540
 aatgtaaaca agttaaagca agagattgaa gtcactcagg aaagtcttga gaattcaaga 600
 agtgaagttt ctgatataac agtacaacta gagcagttga gggatctttg ctccaaactt 660
 gaagctgagg tttctaaact tcagatggaa ttggaggaaa caagggcatc attacagagg 720
 aacattgatg aaacaaaaca cagttcagag ctcttagctg ctgagttgac cactactaag 780
 gagcttctaa agaaaacaaa tgaagaaatg cacactatgt cagatgaact agtagctgtt 840
 tctgaaaatc gtgatagctt acagacagag ctagttagtg tctataagaa agcagaacat 900
 actgctaagt aactgaaaca agaaaagagc attgttgcaa cactagaaga agagttaaaa 960
 tttctggagt ctcaaattac acgagagaaa gagttacgga agagtctgga agacgagtta 1020
 gaaaaggcta cagaatctct tgatgagatt aaccgaaatg tgttggcact tgcagaggag 1080
 ctggagcttg ctacttctcg taattctagc ctcgaaagac agagagaagt gctccgacag 1140
 tctgtttctg agcagaagca aatttcacaa gaagcccaag aaaatctgga agacgcccac 1200
 agcctggtga tgaaacttgg caaggaacgc gaaagtcttg agaagagagc aaagaaattg 1260
 gaagatgaaa tggcagcagc aaaaggtgag attttgcggc tacggagcca aataaactca 1320
 gtaaaagctc cagtgaggga tgaggaaaaa gttgttgctg gggaaaagga aaaggtgaag 1380
 gcaacagtaa cagcaaaaga aactaccagg agaagggaaga gtgctactgt taagcaagag 1440
 gaaccctagt tggctgtttc tgaatgacat aatcttcttc tttttttgtc ctgactcatt 1500
 tgtttgcaat atttatagag aggccagaat taggacattg ccattggaac aagctgtgta 1560
 ttgtctcttt gagtgtaacat ttcccggcga gaagttgcag aaacaaatga ctgatctctt 1620
 gatattcagt caatgttgca gcttactgaa tgaaattatt tgtattgtaa aaaaaaaaaa 1680
 aaaaaaaaaa aaaa 1694

<210> 10
 <211> 1009
 <212> DNA
 <213> Lycopersicon esculentum

<400> 10
 taataatggc aacttcttgt tttcctccat tttctgcttc atcttcttca ttatgttctt 60
 cccaatttac acctttgctt tcttgcccaa gaaatacca aatatgtaga aagaagagac 120
 cggttatggc gagtatgcac tcggaaaatc aaaaggaaag taatgtctgc aacagaagat 180
 cgattctatt tgtgggattc tcagttcttc cacttctcaa tttgagggca agagctctcg 240
 aaggcttgct aacagattct caagcacagc cgcagaaaga ggaaaccgag caaacaatcc 300
 aaggaaagtc agggaatccc ttcgtttctc tacttaatgg acttgggtgtt gttgggttcag 360
 gcgtgcttgg ttctctttat gccttggtct gaaatgagaa ggcagtttca gatgcaacca 420
 ttgaatctat gaaaaataag ctgaaggaca aggaagatgc atttgtttca atgaagaagc 480
 aatttgagtc cgaattgctg agcgaaaggg aagatcgaaa taagctaatt aggcgagaag 540
 gtgaagagcg gcaagctttg gttaatcagt taaaatcagc gaagactaca gtaataagcc 600
 ttggtcagga gctgcaaaac gaaaaaaaac ttgctgaaga tctcaaattt gagatcaagg 660
 gccttcaaaa tgacctcatg aatacgaagg aggataagaa gaaattgcag gaagagctta 720
 aagagaagct tgatttgatt caagttcttg aagaaaagat tactttgctt actacagaga 780
 tcaaagataa agaggtgagt cttcggagta acacctctaa actagctgaa aaagaatcgg 840
 aggtaaatag tttgagcgat atgtatcaac aatcccagga tcagctgatg aatttgactt 900
 cagagatcaa agaacttaaa gatgaaatcc agaaaagaga gagagaactg gaggttgaaat 960
 gtgtatcaga agacaacctg aatgtgcaat taaattcttt gctcctcga 1009

<210> 11
 <211> 1103

<212> DNA
<213> *Nicotiana tabacum*

<400> 11
 cttgagaaat caagaagtga agctttctgat atagtagaac aactacagca gtcgaggcat 60
 ctttgctcta agcttgaagc tgagggtttct aagcttcaga tgggaattgga ggaaacaagg 120
 acattgttac agaagaacat tgatgagaca aaacgtggtg cagagttctt agctgcggag 180
 ctgaccacta ctaggagct tctaaagaaa acaaatgaag aaatgcacac catatccaat 240
 gaactagctg ctgttactga aaatcgtgat aacttacaga cggagctagt tgatgtctac 300
 aagaaagcag aacgtgctgt taatgaactg aaacaagaaa agaattattgt cgtgacattg 360
 gagaaagagc taacattttt ggaggctcaa attacaagag agaaagagtc acggaagaat 420
 ctggaagaag agttggaag ggctacagaa tcacttgatg agatgaacag aaatgctttt 480
 gcacttgcaa aggagctgga gctcgctaatt tctcgtattt ctagcctcaa agacgagaga 540
 gaagtgtctc aaaagtctgt ttctgagcag aagcaaatctt ctcaagaagc ccgagaaaac 600
 cttgaagatg cccatagcct ggtgatgaaa cttggcaagg aacgcgagag tctggagaag 660
 agagcaaaaga aattggaaga tgaaatggca tcagcaaaag gtgagatttt gcggttgagg 720
 acacaagtaa attcggtaaa agctcctggt aacaaagagg aaaaagttga agctggggaa 780
 aaggcaacag taacagtga gagaaacaacc aggaggagga agactgctac tcctgcttct 840
 caacaagaag gctcataatt tgctgtttct gaagtgcac atatccttcc ttttttccct 900
 gactcatatt aattgcaacg agggtagatt attggttcat tatataaaac cagaatgagg 960
 atattgcctt tgtaagaaac tttctgcaag ctgtattctc agtgagtaaa tttccaggcg 1020
 agaagttgcc caaataaatg agatattatt gttgcaagta ccaaatttgg aagggattgt 1080
 ttgatatcaa aaaaaaaaaa aaa 1103

<210> 12
<211> 912
<212> DNA
<213> *Nicotiana tabacum*

<400> 12
 atgagacaaa acgtggtgca gagctcttag ctgcggagct gaccactact agggagcttc 60
 taaagaaaac aaatgaagaa atgcacacta tgtctcatga actagcggct gttactgaaa 120
 attgtgataa cttacagacg gagctagtgt atgtctacaa gaaagcagaa cgtgctgctg 180
 atgaactgaa acaagaaaag aatattgtcg tgacactgga gaaagagcta acattttttg 240
 aggtcctaat tacaagagag aaagagtcac ggaagaatct ggaagaagag ctggaaaggg 300
 ctacggaatc acttgatgag atgaaccgaa atgcttttgc acttgcaaaag gagcttgagc 360
 ttgctaattc tcatatttct agcctcgagg atgagagaga agtgctccaa aagtctgttt 420
 ctgagcagaa acaaatttct caagaatccc gagaaaacct tgaagatgcc catagcctgg 480
 taatgaaact tggcaaggaa cgcgagagtc tggagaagag agcaaaagaa ttggaagatg 540
 aaatggcatc agcaaaagggt gagattttgc ggctgcggac ccaagtaaat tcggtaaaag 600
 ctctgtttaa caatgaggaa aaagttgaag ctggggaaaa ggcagctgta acagtgaaga 660
 gaaccaggag gaaggaagact gctactcagc ctgcttctca gcaagaaaag ccatagtttg 720
 ctgttctaaa gtgacatatc tttccttttt gtccttgact caaattgatt gcgacgagaa 780
 tagattaatg gtgtattata gagaagccag aattaggata ttgcccttgt aagaaacttc 840
 ctgcaagctg tattctcagt gagtgatatat ttccagggtga gaagttgcac aaacaaaaaa 900
 aaaaaaaaaa aa 912

<210> 13
<211> 905
<212> DNA
<213> *Nicotiana tabacum*

<400> 13
 cgagatgtga atcagaagac aacctgaatg tgcaattaaa ttctttgctc gttgagagag 60
 atgaatctaa aaaagagctt gatgctattc aaaaggaata cagcgagttc aagtccattt 120
 cagagaagag agtggttca gatgccaagc tgttggggga acaagaaaag agactacacc 180
 agctcgagga acaacttggt actgccgtaa gtgaagtaag aaaaaataaa gtgctaattg 240
 ctaatttgac tcaagcaaaa gaaaacctaa ggagaatgct ggacgctgag ctggaaaatg 300
 taagcaagtt gaagctagag gtccaggtta ctcaggaaac tcttgagaaa tcaagaagtg 360
 aagcttctga tatagtagaa caactacagc agtcgaggca tctttgctct aagcttgaag 420
 ctgaggtttc taagcttcag atggaattgg aggaacaag gacattgtta cagaagaaca 480
 ttgatgagac aaaacgtggt gcagagctct tagctgcgga gctgaccact actaggagagc 540
 ttctaaagaa aacaaatgaa gaaatgcaca ccatatccaa tgaactagct gctgttactg 600
 aaaatcgtga taacttacag acggagctag ttgatgtcta caagaaagca gaacgtgctg 660

ttaatgaact	gaaacaagaa	aagaatattg	tcgtagacatt	ggagaaagag	ctaacatttt	720
tggaggctca	aattacaaga	gagaaagagt	caccgaagaa	tctggaagaa	gagttggaaa	780
gggctagctc	gcttaagtac	aggagatgga	gaatccaccg	aagaatgaag	tagtggcaga	840
tcattctgcgt	ccaagcaagt	tacttcacca	acagaaaact	tggatttgta	cctgcctgct	900
ctccg						905

<210> 14
 <211> 1597
 <212> DNA
 <213> *Nicotiana tabacum*

<400> 14						
cggcctctga	aatcttcttc	tttttatcac	tttcggagtg	gaaatcgga	gaaaccaacc	60
aactttgtaa	tggggagttc	ttgttttccc	caatctccac	tctctcattc	tctcttttct	120
tcttcatcaa	tatcttcttc	ccaattttaca	cccttgcttt	tttccccaag	aaatgcgcaa	180
aaatgtaaaa	agaaaatgcc	agctatggca	tgtatacact	cggagaatca	aaaggaaagc	240
gaattctgca	gcagaagaac	gattcttttc	gtgggtttct	ctgttcttcc	acttctcagc	300
ttgagggcaa	atgcttttga	aggcttgctc	gtagattctc	aagtaaaagc	acagccgcag	360
aaagaggaga	cgagcaacaa	tccaaggaaa	tgcagagaat	cccttctttt	ctctacttaa	420
tggacttgga	gtttttggtt	caggcgtgct	tggttctctt	tatgccttgg	ctcgaaacga	480
gaaggccgtt	tctgatgcaa	ccattgaatc	tatgaaaaat	aagctgaagg	agaaagaagc	540
cacattcggt	tcatggagaa	gaaattccag	tctgagctgc	tgaacgaaag	ggatatacga	600
aataatcaac	ttaagagggc	aggcgaagaa	cggcaagctc	tggttaacca	attgaattca	660
gcaaagagta	cagtaactaa	ccttggtcag	gagctgcaaa	aagaaaaacg	aattgctgaa	720
gagctcatag	ttcagatcga	gggccttcaa	aataacctca	tgcagatgaa	ggaggataag	780
aaaaaattgc	aggaggagct	taaagagaag	cttgatttga	tacaagttct	gcaagaaaag	840
ataactttac	ttactacaga	gatcaaagat	aaagaggcat	ctcttcagag	tacaacctct	900
aaactagctg	aaaaagaatc	agaggtagat	aaattgagct	caatgtatca	ggaatccag	960
gatcagctga	tgaatttgac	ttcagaaatc	aaagaactta	aagtcgaagt	ccagaaaaga	1020
gagagagaac	tagagttgaa	acgtgaatca	gaagacaacc	ttaatgtgcg	attaaattct	1080
ttgctcggtg	agagagatga	atctaaaaaa	gagcttgatg	ctattcaaaa	ggaatacagc	1140
gagttcaagt	ccatttcaga	gaagaaagtg	gcttctgatg	ccaagctgtt	gggggaacaa	1200
gaaaagagac	tacaccagct	cgaggaaacaa	cttggcactg	cctcagatga	agtacgcaaa	1260
aataatgtgc	taatcgctga	tctgactcaa	gaaaaagaaa	acttaaggag	aatgctggac	1320
gctgagctgg	aaaacataag	caagttgaag	ctagaggtcc	aggttactca	ggaaactctt	1380
gagaaatcta	gaagtgatgc	ttctgatata	gcacaacaac	tacagcagtc	gaggcatctt	1440
tgctctaagc	ttgaagctga	ggtttctaaa	cttcagatgg	aattggagga	aacaagaaca	1500
tcattacgga	ggaacattga	tgagacaaaa	cgtgggtgcag	agctcttagc	tgcgagagctg	1560
accactacta	gggagcttct	aaagaaaaaa	aaaaaag			1597

<210> 15
 <211> 564
 <212> DNA
 <213> *Nicotiana tabacum*

<400> 15						
gaggaacaac	ttggcactgc	ctcagatgaa	gtacgcaaaa	ataatgtgct	aatcgctgat	60
ctgactcaag	aaaaagaaaa	cttaaggaga	atgctggacg	ctgagctgga	aaacataagc	120
aagttgaagc	tagaggtcca	ggttactcag	gaaactcttg	agaaatctag	aagtgatgct	180
tctgatatag	caacaacaact	acagcagtcg	aggcatcttt	gctctaagct	tgaagctgag	240
gtttctaaac	ttcagatgga	attggaggaa	acaagaacat	cattacggag	gaacattgat	300
gagacaaaac	gtggtgcaga	gctcttagct	gcggagctga	ccactactag	ggagcttcta	360
aagaaaacaa	atgaagaaat	gcacactatg	tctcatgaac	tagcggctgt	tactgaaaat	420
tgtgataact	tacagacgga	gctagttgat	gtctacaaga	aagcagaacg	tgctgctgat	480
gaactgaaac	aagaaaagaa	tattgtcgtg	acactggaga	aagagctaac	atttttggag	540
gctcaaatta	caagagagaa	agag				564

<210> 16
 <211> 2154
 <212> DNA
 <213> *Lycopersicon esculentum*

<400> 16

atggcaactt	cttgttttcc	tccattttct	gcttcatctt	cttcattatg	ttcttcccaa	60
tttacacctt	tgctttcttg	cccaagaaat	acccaaatat	gtagaaagaa	gagaccggtt	120
atggcgagta	tgcactcgga	aaatcaaaag	gaaagtaatg	tctgcaacag	aagatcgatt	180
ctatttgtgg	gattctcagt	tcttccactt	ctcaatttga	gggcaagagc	tctcgaaggc	240
ttgtcaacag	atttctcaagc	acagcccgag	aaagaggaaa	ccgagcaaac	aatccaagga	300
agtgcaggga	atcccttcgt	ttctctactt	aatggacttg	gtgttggttg	ttcaggcggtg	360
cttggttctc	tttatgcctt	ggctcgaaat	gagaaggcag	tttcagatgc	aaccattgaa	420
tctatgaaaa	ataagctgaa	ggacaaggaa	gatgcatttg	tttcaatgaa	gaagcaattt	480
gagtccgaat	tgctgagcga	aagggaagat	cgaaataagc	taattaggcg	agaagggtgaa	540
gagcggcaag	ctttggttaa	tcagttaaaa	tcagcgaaga	ctacagtaat	aagccttggt	600
caggagctgc	aaaacgaaaa	aaaacttgct	gaagatctca	aatttgagat	caagggcctt	660
caaaatgacc	tcatgaatac	gaaggaggat	aagaagaaat	tgcaaggaaga	gcttaaagag	720
aagcttgatt	tgattcaagt	tcttgaagaa	aagattactt	tgcttactac	agagatcaaaa	780
gataaagagg	tgagtcttcg	gagtaacacc	tctaaactag	ctgaaaaaga	atcggagggtg	840
aatagtttga	gcgatatgta	tcaacaatcc	caggatcagc	tgatgaattt	gacttcagag	900
atcaaagaac	ttaaagatga	aatccagaaa	agagagagag	aactggagtt	gaaatgtgta	960
tcagaagaca	acctgaatgt	gcaattaaat	tctttgctcc	tcgagagaga	tgaatctaaa	1020
aaagacttct	atgctattca	aaaggaatac	agtgttcca	agtcgaattc	tgatgagaag	1080
gtggcttcag	atgcgaagct	gttgggggaa	caagagaaga	gactacacca	gcttgaggaa	1140
caacttgcca	ctgccttaag	tgaagcaagt	aaaaatgaag	tgctaattgc	tgatctgact	1200
cgagaaaaag	aaaaccttag	gagaatggtg	gatgctgagc	tggaacaatgt	aaacaagtta	1260
aagcaagaga	ttgaagtcac	tcaggaaaagt	cttgagaatt	caagaagtga	agtttctgat	1320
ataacagtac	aactagagca	gttgagggat	ctttgctcca	aacttgaagc	tgaggtttct	1380
aaacttcaga	tgaattgga	ggaaacaagg	gcatcattac	agaggaacat	tgatgaaaca	1440
aaacacagtt	cagagctctt	agctgctgag	ttgaccacta	ctaaggagct	tctaaagaaa	1500
acaaatgaag	aatgcacac	tatgtcagat	gaactagtag	ctgtttctga	aaatcgtgat	1560
agcttacaga	cagagctagt	tgatgtctat	aagaaaagcag	aacatactgc	taatgaactg	1620
aaacaagaaa	agagcattgt	tgcaacacta	gaagaagagt	taaaatttct	ggagtctcaa	1680
attacacgag	agaaagagtt	acggaagagt	ctggaagacg	agttagaaaa	ggctacagaa	1740
tctcttgatg	agattaaccg	aaatgtgttg	gcacttgtag	aggagctgga	gcttgctact	1800
tctcgttaatt	ctagcctcga	agacgagaga	gaagtgtctc	gacagtctgt	ttctgagcag	1860
aagcaaattt	cacaagaagc	ccaagaaaat	ctggaagacg	cccatagcct	ggtgatgaaa	1920
cttggaagg	aacgcgaaag	tcttgagaag	agagcaaaga	aattggaaga	tgaaatggca	1980
gcagcaaaaag	gtgagatttt	gcggctacgg	agccaaataa	actcagtaaa	agctccagtg	2040
gaggatgagg	aaaaagttgt	tgctggggaa	aaggaaaagg	tgaaggcaac	agtaacagca	2100
aagaaaacta	ccaggagaag	gaagagtgtc	actgttaagc	aagaggaacc	ctag	2154

<210> 17
 <211> 717
 <212> PRT
 <213> *Lycopersicon esculentum*

<400> 17

Met	Ala	Thr	Ser	Cys	Phe	Pro	Pro	Phe	Ser	Ala	Ser	Ser	Ser	Ser	Leu
1				5					10						15
Cys	Ser	Ser	Gln	Phe	Thr	Pro	Leu	Leu	Ser	Cys	Pro	Arg	Asn	Thr	Gln
			20					25					30		
Ile	Cys	Arg	Lys	Lys	Arg	Pro	Val	Met	Ala	Ser	Met	His	Ser	Glu	Asn
		35					40					45			
Gln	Lys	Glu	Ser	Asn	Val	Cys	Asn	Arg	Arg	Ser	Ile	Leu	Phe	Val	Gly
	50					55					60				
Phe	Ser	Val	Leu	Pro	Leu	Leu	Asn	Leu	Arg	Ala	Arg	Ala	Leu	Glu	Gly
65					70				75					80	
Leu	Ser	Thr	Asp	Ser	Gln	Ala	Gln	Pro	Gln	Lys	Glu	Glu	Thr	Glu	Gln
				85				90						95	
Thr	Ile	Gln	Gly	Ser	Ala	Gly	Asn	Pro	Phe	Val	Ser	Leu	Leu	Asn	Gly
			100					105					110		

Leu Gly Val Val Gly Ser Gly Val Leu Gly Ser Leu Tyr Ala Leu Ala
 115 120 125
 Arg Asn Glu Lys Ala Val Ser Asp Ala Thr Ile Glu Ser Met Lys Asn
 130 135 140
 Lys Leu Lys Asp Lys Glu Asp Ala Phe Val Ser Met Lys Lys Gln Phe
 145 150 155 160
 Glu Ser Glu Leu Leu Ser Glu Arg Glu Asp Arg Asn Lys Leu Ile Arg
 165 170 175
 Arg Glu Gly Glu Glu Arg Gln Ala Leu Val Asn Gln Leu Lys Ser Ala
 180 185 190
 Lys Thr Thr Val Ile Ser Leu Gly Gln Glu Leu Gln Asn Glu Lys Lys
 195 200 205
 Leu Ala Glu Asp Leu Lys Phe Glu Ile Lys Gly Leu Gln Asn Asp Leu
 210 215 220
 Met Asn Thr Lys Glu Asp Lys Lys Lys Leu Gln Glu Glu Leu Lys Glu
 225 230 235 240
 Lys Leu Asp Leu Ile Gln Val Leu Glu Glu Lys Ile Thr Leu Leu Thr
 245 250 255
 Thr Glu Ile Lys Asp Lys Glu Val Ser Leu Arg Ser Asn Thr Ser Lys
 260 265 270
 Leu Ala Glu Lys Glu Ser Glu Val Asn Ser Leu Ser Asp Met Tyr Gln
 275 280 285
 Gln Ser Gln Asp Gln Leu Met Asn Leu Thr Ser Glu Ile Lys Glu Leu
 290 295 300
 Lys Asp Glu Ile Gln Lys Arg Glu Arg Glu Leu Glu Leu Lys Cys Val
 305 310 315 320
 Ser Glu Asp Asn Leu Asn Val Gln Leu Asn Ser Leu Leu Leu Glu Arg
 325 330 335
 Asp Glu Ser Lys Lys Glu Leu His Ala Ile Gln Lys Glu Tyr Ser Glu
 340 345 350
 Phe Lys Ser Asn Ser Asp Glu Lys Val Ala Ser Asp Ala Lys Leu Leu
 355 360 365
 Gly Glu Gln Glu Lys Arg Leu His Gln Leu Glu Glu Gln Leu Gly Thr
 370 375 380
 Ala Leu Ser Glu Ala Ser Lys Asn Glu Val Leu Ile Ala Asp Leu Thr
 385 390 395 400
 Arg Glu Lys Glu Asn Leu Arg Arg Met Val Asp Ala Glu Leu Asp Asn
 405 410 415
 Val Asn Lys Leu Lys Gln Glu Ile Glu Val Thr Gln Glu Ser Leu Glu
 420 425 430
 Asn Ser Arg Ser Glu Val Ser Asp Ile Thr Val Gln Leu Glu Gln Leu
 435 440 445

Arg Asp Leu Cys Ser Lys Leu Glu Ala Glu Val Ser Lys Leu Gln Met
 450 455 460
 Glu Leu Glu Glu Thr Arg Ala Ser Leu Gln Arg Asn Ile Asp Glu Thr
 465 470 475 480
 Lys His Ser Ser Glu Leu Leu Ala Ala Glu Leu Thr Thr Thr Lys Glu
 485 490 495
 Leu Leu Lys Lys Thr Asn Glu Glu Met His Thr Met Ser Asp Glu Leu
 500 505 510
 Val Ala Val Ser Glu Asn Arg Asp Ser Leu Gln Thr Glu Leu Val Asp
 515 520 525
 Val Tyr Lys Lys Ala Glu His Thr Ala Asn Glu Leu Lys Gln Glu Lys
 530 535 540
 Ser Ile Val Ala Thr Leu Glu Glu Glu Leu Lys Phe Leu Glu Ser Gln
 545 550 555 560
 Ile Thr Arg Glu Lys Glu Leu Arg Lys Ser Leu Glu Asp Glu Leu Glu
 565 570 575
 Lys Ala Thr Glu Ser Leu Asp Glu Ile Asn Arg Asn Val Leu Ala Leu
 580 585 590
 Ala Glu Glu Leu Glu Leu Ala Thr Ser Arg Asn Ser Ser Leu Glu Asp
 595 600 605
 Glu Arg Glu Val Leu Arg Gln Ser Val Ser Glu Gln Lys Gln Ile Ser
 610 615 620
 Gln Glu Ala Gln Glu Asn Leu Glu Asp Ala His Ser Leu Val Met Lys
 625 630 635 640
 Leu Gly Lys Glu Arg Glu Ser Leu Glu Lys Arg Ala Lys Lys Leu Glu
 645 650 655
 Asp Glu Met Ala Ala Ala Lys Gly Glu Ile Leu Arg Leu Arg Ser Gln
 660 665 670
 Ile Asn Ser Val Lys Ala Pro Val Glu Asp Glu Glu Lys Val Val Ala
 675 680 685
 Gly Glu Lys Glu Lys Val Lys Ala Thr Val Thr Ala Lys Lys Thr Thr
 690 695 700
 Arg Arg Arg Lys Ser Ala Thr Val Lys Gln Glu Glu Pro
 705 710 715

<210> 18
 <211> 407
 <212> DNA
 <213> Nicotiana tabacum

<400> 18
 tcgaggaaca acttggcact gcctcagatg aagtacgcaa aaataatgtg ctaatcgctg 60
 atctgactca agaaaaagaa aacttaagga gaatgctgga cgctgagctg gaaaacataa 120
 gcaagttgaa gctagaggtc caggttactc aggaaactct tgagaaatct agaagtgatg 180
 cttctgatat agcacaacaa ctacagcagt cgaggcatct ttgctctaag cttgaagctg 240
 aggtttctaa acttcagatg gaattggagg aaacaagaac atcattacgg aggaacattg 300
 atgagacaaa acgtggtgca gagctcttag ctgcggagct gaccactact agggagcttc 360
 taaagaaaaa aaaaaaagga attcctgcag cccgggggat ccactag 407

<210> 19
 <211> 1491
 <212> DNA
 <213> Glycine max

<400> 19
 gtgatgtcat ggagaaggaa tacaatgata taaagttcag tgctgttaaag aaggctgctt 60
 tggactctaa gggtttaaga gaaaaagaag aggagcttca tcagctaaag gatcagtttg 120
 aacttgccct aggtgaagca agcaaaagcc agatcgatcat tgctgattta tccaacaaa 180
 gagatgattt gaaggaggct ctagataatg aatctagcaa ggtgaatcat ttgaagcaag 240
 aactccaagt taccctggag aatcttgcaa aatcaagaaa tgagtctgct gaattggaaa 300
 accttctaac tttgtcaaac aaactgtgca aagagctcga gctcgaggct tctaagctct 360
 catctgagct cactgaggtt aatgaatcgc tacagagaaa ccttgatgat gcgaaacatg 420
 aggcagaaat gctagcaagt gagcttaca ctgccaaagga acacttgaag gaagcacaag 480
 cagagctgca aggttggtcaa aagaatctga cagctgctct tgaaaagaat gatagcctac 540
 aaaaagaatt agttgaagtc taaaaaaagg ctgaaagcac agcagaggat ttgaaggaac 600
 aaaaacagtt agttgcttct ctgaacaaag atttacaagc attagagcag caagtctcaa 660
 aagacaagga gtcccgaaaa tctcttgaga gggacctgga ggagcgacc atatcactag 720
 atgaaatgaa ccgaaatgag gtgatccctt ctgggggaact acagagagct aattctcttg 780
 tttctagcct tgaaaaagag aaagatgtgc ttattaagtc cctaaccaac caaagaaatg 840
 catgcaaaga ggccaagac aacattgaag atgctcataa ccttatcatg aaacttggca 900
 aagaaagaga gaatttagag aaaaaaggta agaaatttga agaggaattg gcttctgcca 960
 agggtagat attgcgcttg aagagtcgaa tcaattcttc aaaagttgct gttaacaatg 1020
 gccagtgca gaaagatgga ggtgaaaaaa aggtcaaccc ttcaaaagtt gcggtaaaca 1080
 atgagcaagc acagaaagat gaaggtgaaa acaagggttac tgtaagtgca cggaagactg 1140
 tcagaagaag aaaggctaac ccacaataac agagaaatta gagagtttct tattaataat 1200
 attccgatta ggatcatgat attctgtaat aaactatttg gaagccagtt gattctattc 1260
 acttttggca tgcaaatatt ttcatgtttt gcaatagtat tgacaaatta aatgacactg 1320
 taggaattgt taagctaagc tttttggaga gttgatttct gatagtaaac ctaaaaaaaa 1380
 aggtaagaat actattacca accttagtct gcaacattat acattagtgt atatacagct 1440
 acttttccat gtctatgaag caaatcgaca agcttggtgc caaaaaaaaa a 1491

<210> 20
 <211> 388
 <212> PRT
 <213> Glycine max

<400> 20
 Asp Val Met Glu Lys Glu Tyr Asn Asp Leu Lys Phe Ser Ala Val Lys
 1 5 10 15
 Lys Ala Ala Leu Asp Ser Lys Val Leu Arg Glu Lys Glu Glu Glu Leu
 20 25 30
 His Gln Leu Lys Asp Gln Phe Glu Leu Ala Leu Gly Glu Ala Ser Lys
 35 40 45
 Ser Gln Ile Val Ile Ala Asp Leu Ser Gln Gln Arg Asp Asp Leu Lys
 50 55 60
 Glu Ala Leu Asp Asn Glu Ser Ser Lys Val Asn His Leu Lys Gln Glu
 65 70 75 80
 Leu Gln Val Thr Leu Glu Asn Leu Ala Lys Ser Arg Asn Glu Ser Ala
 85 90 95
 Glu Leu Glu Asn Leu Leu Thr Leu Ser Asn Lys Leu Cys Lys Glu Leu
 100 105 110
 Glu Leu Glu Val Ser Lys Leu Ser Glu Leu Thr Glu Val Asn Glu
 115 120 125

Ser Leu Gln Arg Asn Leu Asp Asp Ala Lys His Glu Ala Glu Met Leu
 130 135 140
 Ala Ser Glu Leu Thr Thr Ala Lys Glu His Leu Lys Glu Ala Gln Ala
 145 150 155 160
 Glu Leu Gln Gly Cys Gln Lys Asn Leu Thr Ala Ala Leu Glu Lys Asn
 165 170 175
 Asp Ser Leu Gln Lys Glu Leu Val Glu Val Tyr Lys Lys Ala Glu Ser
 180 185 190
 Thr Ala Glu Asp Leu Lys Glu Gln Lys Gln Leu Val Ala Ser Leu Asn
 195 200 205
 Lys Asp Leu Gln Ala Leu Glu Gln Gln Val Ser Lys Asp Lys Glu Ser
 210 215 220
 Arg Lys Ser Leu Glu Arg Asp Leu Glu Glu Ala Thr Ile Ser Leu Asp
 225 230 235 240
 Glu Met Asn Arg Asn Ala Val Ile Leu Ser Gly Glu Leu Gln Arg Ala
 245 250 255
 Asn Ser Leu Val Ser Ser Leu Glu Lys Glu Lys Asp Val Leu Ile Lys
 260 265 270
 Ser Leu Thr Asn Gln Arg Asn Ala Cys Lys Glu Ala Gln Asp Asn Ile
 275 280 285
 Glu Asp Ala His Asn Leu Ile Met Lys Leu Gly Lys Glu Arg Glu Asn
 290 295 300
 Leu Glu Lys Lys Gly Lys Lys Phe Glu Glu Glu Leu Ala Ser Ala Lys
 305 310 315 320
 Gly Glu Ile Leu Arg Leu Lys Ser Arg Ile Asn Ser Ser Lys Val Ala
 325 330 335
 Val Asn Asn Gly Pro Val Gln Lys Asp Gly Gly Glu Lys Lys Val Asn
 340 345 350
 Pro Ser Lys Val Ala Val Asn Asn Glu Gln Ala Gln Lys Asp Glu Gly
 355 360 365
 Glu Asn Lys Val Thr Val Ser Ala Arg Lys Thr Val Arg Arg Arg Lys
 370 375 380

Ala Asn Pro Gln
385

<210> 21
 <211> 2019
 <212> DNA
 <213> Zea mays

<400> 21
 cggacgcgtg ggcctaaatt tgaagggaca aagggtattg caaaacctga caacactcaa 60
 cctgaaggaa ctcaggctga aactatacct gaagctcgctc agcgtgaatc atccttacag 120
 ttggtgcaag aacaacctcc agagaatcca ctgcttggct ttcttggtat agttggagtt 180
 gctgcctctg gtgttcttgg tgggctgtac ggcacttctc tacaagaaga aaaggccctg 240
 caatcaattg tctcctcaat ggagagcaaa ttggctgaaa atgaggcagc actttcattg 300
 atgagggata attatgagaa acggttactg gagcagcaag cagcacaaaa gaagcaatct 360
 atgaagttcc aggagcagga agtttctctt tcaggtcagt tggcttcagc aacaaagact 420

ttgacatcac	tgagtgaaga	attcagaaag	gagaagaaat	tagctgagga	acttagggat	480
gaaatacaga	gattagagag	tagtatcaca	caagctggca	ttgataatga	tgtgcttgaa	540
actaaattgg	aagaaaagct	tggtgagatt	aattttttgc	aggaaaaggt	aagtttactc	600
aaccaagaaa	ttgatgataa	ggagaagcac	atcagggaac	tcagtgcac	actttcctcg	660
aaggaagtag	actaccaaaa	gctgaccgct	ttcacaaatc	aaactaaaaa	gagccttgag	720
cttgcaaat	ctagagtaca	acaactcgag	gaagaactaa	gtacaactaa	gaacgctctc	780
gtttctaaga	tatcttctat	tgattcactc	aatgctaaac	ttgaaacctt	gaactctgaa	840
aagaagaagc	tgacaaaaaa	aataaatgag	ttaatacaag	agtatacaga	cctgaagggt	900
gcttcagaga	caagggcaag	ccatgattcc	aaactactgt	cagaaagaga	tgatctgata	960
aaacagcttg	aggaaaaact	gtctgttgca	ttaactgatt	ctagcaaaga	tcaagaaaca	1020
attgttgagt	tgaacaagga	gttggtgct	accaaataga	tgctaaagaa	tgaacttaag	1080
tccatggaag	ctttaaaaga	ttcaattcga	tcactctgaag	aggctctaaa	gacttcaaga	1140
agtgagggtt	ccaaactttc	caaggagctt	gaggaggcaa	atgaattgaa	tgaggacctg	1200
gtatcacaaa	tttctaaact	ccgagaggaa	tccaatgaaa	tgcaagtaga	tctcactaat	1260
aaactaggag	aggcagaatc	actatctaaa	gctctgtcag	aagatttggc	ttcagtaaat	1320
gaaatggttc	agaagggaca	agaagaactc	gaagccacct	ctattgagct	ggcatctatt	1380
gctgaagctc	gtgacaactt	gaagaaagaa	ttgctggatg	cgtacaagaa	tttggagtca	1440
accacacatg	agcttgtcga	ggaaagaaaa	attgtgacag	ccttaaacia	ggaacttgaa	1500
gcgttagcga	aacagttgca	ggttgattct	gaagcaagaa	aaagtctcga	atcacacctg	1560
gaggaggcaa	caaagtcact	agatgaaatg	aacaatagcg	cgctgttact	gtctaaagaa	1620
cttgagagca	ctcattctag	gagtgccact	cttgaatctg	agaaggaaat	gctacgcaag	1680
gctctagctg	aacaaacgaa	aatcacaacc	gaagctaagg	aaaacacaga	ggatgctcag	1740
aaccttatca	caaggcttga	gacagagaag	gagagctttg	aattgaggtg	tagacatctt	1800
gaagaggaat	tggcgttagc	aaaagggtgag	atactgcgcc	taaggaggca	gattagcaca	1860
aacagttctc	agaaaccaag	agcaagagga	ccaccagagg	ccagtgaac	tctgaaggag	1920
caacctgtga	atgattataa	tcagaagacc	agtggagttg	ttgctggaac	tccacagcct	1980
gtgaaaagga	ctgtaaggag	aagaaaaggt	ggcgcataa			2019

<210> 22
 <211> 672
 <212> PRT
 <213> Zea mays

<400> 22
 Arg Thr Arg Gly Pro Lys Phe Glu Gly Thr Lys Gly Ile Ala Lys Pro
 1 5 10 15
 Asp Asn Thr Gln Pro Glu Gly Thr Gln Ala Glu Thr Ile Pro Glu Ala
 20 25 30
 Arg Gln Arg Glu Ser Ser Leu Gln Leu Val Gln Glu Gln Pro Pro Glu
 35 40 45
 Asn Pro Leu Leu Gly Phe Leu Gly Ile Val Gly Val Ala Ala Ser Gly
 50 55 60
 Val Leu Gly Gly Leu Tyr Gly Thr Ser Leu Gln Glu Glu Lys Ala Leu
 65 70 75 80
 Gln Ser Ile Val Ser Ser Met Glu Ser Lys Leu Ala Glu Asn Glu Ala
 85 90 95
 Ala Leu Ser Leu Met Arg Asp Asn Tyr Glu Lys Arg Leu Leu Glu Gln
 100 105 110
 Gln Ala Ala Gln Lys Lys Gln Ser Met Lys Phe Gln Glu Gln Glu Val
 115 120 125
 Ser Leu Ser Gly Gln Leu Ala Ser Ala Thr Lys Thr Leu Thr Ser Leu
 130 135 140
 Ser Glu Glu Phe Arg Lys Glu Lys Lys Leu Ala Glu Glu Leu Arg Asp
 145 150 155 160

Glu Ile Gln Arg Leu Glu Ser Ser Ile Thr Gln Ala Gly Ile Asp Asn
 165 170 175
 Asp Val Leu Glu Thr Lys Leu Glu Glu Lys Leu Gly Glu Ile Asn Phe
 180 185 190
 Leu Gln Glu Lys Val Ser Leu Leu Asn Gln Glu Ile Asp Asp Lys Glu
 195 200 205
 Lys His Ile Arg Glu Leu Ser Ala Ser Leu Ser Ser Lys Glu Val Asp
 210 215 220
 Tyr Gln Lys Leu Thr Ala Phe Thr Asn Gln Thr Lys Lys Ser Leu Glu
 225 230 235 240
 Leu Ala Asn Ser Arg Val Gln Gln Leu Glu Glu Glu Leu Ser Thr Thr
 245 250 255
 Lys Asn Ala Leu Val Ser Lys Ile Ser Ser Ile Asp Ser Leu Asn Ala
 260 265 270
 Lys Leu Glu Thr Leu Asn Ser Glu Lys Lys Lys Leu Thr Lys Lys Ile
 275 280 285
 Asn Glu Leu Ile Gln Glu Tyr Thr Asp Leu Lys Val Ala Ser Glu Thr
 290 295 300
 Arg Ala Ser His Asp Ser Lys Leu Leu Ser Glu Arg Asp Asp Leu Ile
 305 310 315 320
 Lys Gln Leu Glu Glu Lys Leu Ser Val Ala Leu Thr Asp Ser Ser Lys
 325 330 335
 Asp Gln Glu Thr Ile Val Glu Leu Asn Lys Glu Leu Asp Ala Thr Lys
 340 345 350
 Met Met Leu Lys Asn Glu Leu Lys Ser Met Glu Ala Leu Lys Asp Ser
 355 360 365
 Ile Arg Ser Ser Glu Glu Ala Leu Lys Thr Ser Arg Ser Glu Val Ser
 370 375 380
 Lys Leu Ser Lys Glu Leu Glu Glu Ala Asn Glu Leu Asn Glu Asp Leu
 385 390 395 400
 Val Ser Gln Ile Ser Lys Leu Arg Glu Glu Ser Asn Glu Met Gln Val
 405 410 415
 Asp Leu Thr Asn Lys Leu Gly Glu Ala Glu Ser Leu Ser Lys Ala Leu
 420 425 430
 Ser Glu Asp Leu Ala Ser Val Asn Glu Met Val Gln Lys Gly Gln Glu
 435 440 445
 Glu Leu Glu Ala Thr Ser Ile Glu Leu Ala Ser Ile Ala Glu Ala Arg
 450 455 460
 Asp Asn Leu Lys Lys Glu Leu Leu Asp Ala Tyr Lys Asn Leu Glu Ser
 465 470 475 480
 Thr Thr His Glu Leu Val Glu Glu Arg Lys Ile Val Thr Ala Leu Asn
 485 490 495

Lys Glu Leu Glu Ala Leu Ala Lys Gln Leu Gln Val Asp Ser Glu Ala
 500 505 510
 Arg Lys Ser Leu Glu Ser Asp Leu Glu Glu Ala Thr Lys Ser Leu Asp
 515 520 525
 Glu Met Asn Asn Ser Ala Leu Leu Leu Ser Lys Glu Leu Glu Ser Thr
 530 535 540
 His Ser Arg Ser Ala Thr Leu Glu Ser Glu Lys Glu Met Leu Arg Lys
 545 550 555 560
 Ala Leu Ala Glu Gln Thr Lys Ile Thr Thr Glu Ala Lys Glu Asn Thr
 565 570 575
 Glu Asp Ala Gln Asn Leu Ile Thr Arg Leu Glu Thr Glu Lys Glu Ser
 580 585 590
 Phe Glu Leu Arg Cys Arg His Leu Glu Glu Glu Leu Ala Leu Ala Lys
 595 600 605
 Gly Glu Ile Leu Arg Leu Arg Arg Gln Ile Ser Thr Asn Ser Ser Gln
 610 615 620
 Lys Pro Arg Ala Arg Gly Pro Pro Glu Ala Ser Glu Thr Leu Lys Glu
 625 630 635 640
 Gln Pro Val Asn Asp Tyr Asn Gln Lys Thr Ser Gly Val Val Ala Gly
 645 650 655
 Thr Pro Gln Pro Val Lys Arg Thr Val Arg Arg Arg Lys Gly Gly Ala
 660 665 670

<210> 23
 <211> 322
 <212> DNA
 <213> Oryza sativa

<220>
 <223> n= g, a, c or t

<400> 23
 gagagaaact agttctagga aggacactct tgaagcagag aaaaaaatgt tatcaaaggc 60
 tcttgctgag caacagaaga tcacaactga agctcatgaa aacactgagg atgctcagaa 120
 tcttatctct aggttcaga ctgagaagga gagttttgaa atgagggcta gacatcttga 180
 agaggagttg gcgttagcaa agggtagat attgcgccta agaaggcaga ttagtacaag 240
 cagatcacag aaagcaaaaa ctcttccaaa cacaaatgca tctccagagg tcagtcaggc 300
 tccangacga gcaggctgtg aa 322

<210> 24
 <211> 107
 <212> PRT
 <213> Oryza alta

<220>
 <223> X= G or R

<400> 24
 Arg Glu Thr Ser Ser Arg Lys Asp Thr Leu Glu Ala Glu Lys Lys Met
 1 5 10 15
 Leu Ser Lys Ala Leu Ala Glu Gln Gln Lys Ile Thr Thr Glu Ala His
 20 25 30

